

Listing of the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Claims 1-116 (Cancelled)

117. (Currently Amended) A nucleic acid displacer composition comprising an isolated oligo- or polynucleotide displacer, which binds to or complexes with a recipient polynucleotide duplex to form a displacer-recipient complex,
said oligo- or polynucleotide displacer comprising two or more sequences:
 - a) at least one first sequence which binds or complexes with said recipient polynucleotide duplex;
 - b) at least one second sequence, said second sequence:
 - (i) being complementary or identical to at least a portion of one strand of said recipient polynucleotide duplex;
 - (ii) comprising one or more modified nucleotides that increase stability; and
 - (iii) comprising one or more nucleotides that form a mismatch with said strand of the recipient polynucleotide duplex,
wherein said displacer changes at least one nucleotide or a nucleotide sequence in said recipient polynucleotide duplex when the displacer is introduced to into the recipient polynucleotide duplex.
118. (Previously Presented) The composition of claim 117, wherein said second sequence is adjacent to said first sequence.
119. (Previously Presented) The composition of claim 117, wherein said second sequence is separated from said first sequence by from 1 to 5 intervening moieties.

120. (Previously Presented) The composition of claim 119, wherein one of said intervening moieties has an intercalating agent covalently attached thereto.
121. (Previously Presented) The composition of claim 119, wherein said intervening moieties are nucleotides.
122. (Previously Presented) The composition of claim 120, wherein at least one of said moieties is a modified nucleotide.
123. (Previously Presented) The composition of claim 122, wherein said modified nucleotide has an intercalating agent covalently attached.
124. (Previously Presented) The composition of claim 122, wherein said modified nucleotide is incapable of base pairing.
125. (Currently Amended) The composition of claim 117, wherein at least one of said nucleotides complementary to said one strand of the recipient polynucleotide duplex is modified to increase the stability of the displacer-recipient complex, wherein the modification is in the second sequence.
126. (Withdrawn) The composition of claim 117, wherein at least one of said nucleotides complementary to one strand of a recipient polynucleotide duplex is modified to increase the melting temperature of the displacer-recipient complex.
127. (Previously Presented) The composition of claim 125, wherein said modified nucleotides comprise modified nucleotides which increase the association constant with the complementary nucleotide by at least about 20 percent.

128. (Previously Presented) The composition of claim 125, wherein said modified nucleotides comprise modified nucleotides which increase the association constant with the complementary nucleotide by at least about 70 percent.
129. (Previously Presented) The composition of claim 125, wherein at least about 10% of the nucleotides in said second sequence is modified.
130. (Previously Presented) The composition of claim 129, wherein said modification has been carried out on a modified nucleotide is selected from the group consisting of 5-halogenated pyrimidine nucleotides, 5-methyldeoxycytidine, diaminopurine deoxynucleotide, ribonucleotides and 2'-alkylated ribonucleotides.
131. (Previously Presented) The composition of claim 129, wherein said modified nucleotide comprises a 5-halogenated pyrimidine nucleotide.
132. (Previously Presented) The composition of claim 129, wherein said modified nucleotide comprises 5-bromodeoxyuridine.
133. (Withdrawn) The composition of claim 129, wherein said modified nucleotide comprises 5-methyldeoxycytidine.
134. (Previously Presented) The composition of claim 117, which further comprises at least one moiety attached to a terminus of the oligo or polynucleotide, said moiety conferring exonuclease_{resistance} to the terminus to which it is attached.
135. (Previously Presented) The composition of claim 134, wherein said moiety is attached to a terminal nucleotide.
136. (Previously Presented) The composition of claim 135, wherein said moiety is indirectly attached to a terminal nucleotide.

137. (Previously Presented) The composition of claim 134, wherein said moiety is attached to the deoxyribose moiety at the hydroxyl group of a terminal nucleotide.
138. (Withdrawn) The composition of claim 134, wherein said moiety is attached to the phosphate moiety of a terminal nucleotide.
139. (Withdrawn) The composition of claim 134, where said moiety is selected from the group consisting of intercalating agents, isoureas, carbodiimides and N-hydroxybenzotriazoles.
140. (Previously Presented) The composition of claim 137, wherein said moiety comprises a methylthiophosphonate.
141. (Previously Presented) The composition of claim 134, wherein said moiety is selected from the group consisting of polypeptides and proteins.
142. (Withdrawn) The composition of claim 134, wherein said moiety is a 2',3'-dideoxyribose nucleotide attached to the 3'-terminal nucleotide through a phosphodiester linkage.
143. (Withdrawn) The composition of claim 142, wherein said 2',3'-dideoxyribose nucleotide comprises a modified 2',3'-dideoxyribose nucleotide.
144. (Previously Presented) The composition of claim 117, further comprising a modification which permits detection of the displacer-recipient complex.

145. (Previously Presented) The composition of claim 144, wherein said modification comprises a member selected from the group consisting of non-radioactive labels, radioactive labels, fluorescent labels, chemiluminescent labels, enzymes and targets for detection.
146. (Previously Presented) The composition of claim 144, wherein said modification is selected from the group consisting of biotin moieties, phosphorothioate linkages and antigens.
147. (Currently amended) The ~~modification composition~~ of claim 117, further comprising a modification which allows capture of the displacer-recipient complex by affinity chromatography.
148. (Currently amended) An artificially constructed polynucleotide hybrid comprising a naturally occurring recipient polynucleotide duplex hybridized to the nucleic acid displacer composition of any one of claims ~~118-147~~ 118-125; 127-132; 134-137; 140-141; and 144-147.
149. (Withdrawn) A process for modifying a recipient polynucleotide duplex comprising contacting under complex forming conditions such recipient polynucleotide duplex with the nucleic acid displacer composition of claim 118.
150. (Withdrawn) The process of claim 149, wherein at least one of the nucleotides complementary to one strand of said recipient polynucleotide duplex is modified to increase the stability of the displacer-recipient complex.
151. (Withdrawn) The process of claim 149, wherein at least one of the nucleotides complementary to one strand of a recipient polynucleotide duplex is modified to increase the melting temperature of the displacer-recipient complex.

152. (Withdrawn) The process of claim 151, wherein said modified nucleotides comprise modified nucleotides which increase the association constant with the complementary nucleotides by at least about 20 percent.
153. (Withdrawn) The process of claim 149, wherein said modification is in the second sequence of the displacer.
154. (Withdrawn) The process of claim 153, wherein at least about 10% of the nucleotides in said second sequence is modified.
155. (Withdrawn) The process of claim 153, wherein said modification comprises a modified base member selected from the group consisting of 5-halogenated pyrimidine nucleotides, 5-methyldeoxycytidine, diaminopurine deoxynucleotide, ribonucleotides, and 2'-alkylated ribonucleotides.
156. (Withdrawn) The process of claim 153, wherein said modification is carried out on a modified nucleotide comprising 5-halogenated pyrimidine nucleotide.
157. (Withdrawn) The process of claim 153, wherein said modification is carried out on a modified nucleotide comprising 5-bromodeoxyuridine.
158. (Withdrawn) The process of claim 153, wherein said modification is carried out on a modified nucleotide comprising 5-methyldeoxycytidine.
159. (Withdrawn) The process of claim 159, wherein said displacer contains at least one moiety attached to a terminus of the oligo or polynucleotide, said moiety conferring endonuclease resistance to the terminus to which it is attached.

160. (Withdrawn) The process of claim 159, wherein said moiety is attached to a terminal nucleotide.
161. (Withdrawn) The process of claim 159, wherein said moiety is indirectly attached to a terminal nucleotide.
162. (Withdrawn) The process of claim 159, wherein said moiety is attached to the deoxyribose moiety at the hydroxyl group of a terminal nucleotide.
163. (Withdrawn) The process of claim 159, wherein said moiety is attached to the phosphate moiety of a terminal nucleotide.
164. (Withdrawn) The process of claim 159, wherein the moiety is selected from the group consisting of intercalating agents, isoureas, carbodiimides and N-hydroxybenzotriazoles.
165. (Withdrawn) The process of claim 161, wherein said moiety is a methylthiophosphonate.
166. (Withdrawn) The process of claim 161, wherein said moiety is selected from the group consisting of polypeptides and proteins.
167. (Withdrawn) The process of claim 161, wherein said moiety comprises a 2',3'-dideoxyribose nucleotide attached to the 3'-terminal nucleotide through a phosphodiester linkage.
168. (Withdrawn) The process of claim 167, wherein said 2',3'-dideoxyribose nucleotide comprises a modified 2',3'-dideoxyribose nucleotide.

169. (Withdrawn) A process for labeling a displacer-recipient complex comprising contacting a recipient polynucleotide duplex with the displacer recited in claim 161 under complex forming conditions, wherein said displacer contains a modification which will permit detection of the displacer-recipient complex.
170. (Withdrawn) The process of claim 169, wherein said modification comprises a member selected from the group consisting of radioactive labels, fluorescent and chemiluminescent labels, enzymes and targets for detection.
171. (Withdrawn) The process of claim 169, wherein said modification comprises one or more targets for affinity chromatography.
172. (Withdrawn) The process of claim 169, wherein said modification is selected from the group consisting of biotin moieties, antigens and phosphorothioate linkages.
173. (Withdrawn) In a process for capturing an artificially constructed nucleic acid hybrid by affinity chromatography, the improvement comprising modifying the hybrid by the process of claim 149.
174. (Withdrawn) In a process for enriching a recipient polynucleotide duplex in a population of polynucleotide duplexes, the improvement comprising labeling the recipient polynucleotide duplex by the process of claim 149.
175. (Withdrawn) In a process for the site-specific addition, deletion or alteration of nucleotides in a recipient polynucleotide duplex, the improvement comprising modifying the duplex by the process of claim 149.
176. (Withdrawn) In a process for repairing a mutational lesion comprising replacing a naturally occurring strand of nucleic acid with a modified strand of nucleic acid, the improvement comprising introducing said modified strand of nucleic acid to the

naturally occurring duplex by the process of claim 149, and displacing said naturally occurring strand thereby.

177. (Withdrawn) A process for site-specific addition, deletion or alteration of nucleotides in a recipient polynucleotide duplex in a cell, said process comprising the steps of:
 - i) providing said nucleic acid displacer composition of claim 117; and
 - ii) introducing said composition into said cell.
178. (Withdrawn) A process for repairing a mutational lesion in a cell, said process comprising the steps of:
 - i) providing said nucleic acid displacer composition of claim 117; and
 - ii) introducing said composition into said cell.
179. (New) The nucleic acid displacer composition of claim 117, wherein the recipient polynucleotide duplex is a polydeoxynucleotide duplex.
180. (New) The nucleic acid displacer composition of claim 117, wherein the oligo- or polynucleotide displacer comprises a displacer strand and a linker strand.